STATINTL

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Panoramic Stereoviewer

STATINTL [redacted]

Progress Report

Covering the Status as of June 28, 1963

During this reporting period the instrument assembly was completed sufficiently to make preliminary tests of the following:

(1) Plastic drums and tracking of film on drums.
(2) Optical viewing system with field flattener optics.
(3) X and Y manual drives.
(4) Lamp cooling system.
(5) Motor drives and film tensioning requirements.
(6) X and Y counters and counter drives.
(7) Illumination and optical condensing system.

Results of the Operational Tests:

(1) Both 5 inch and 9 inch film track very well on the drums without the need for film guides. Film tensioning control is critical to avoid film slippage on drums. The plastic drums are not acceptable because of the lack of resistance to abrasion. Investigation into vacuum coating with SiO_2 to produce a hard surface was not successful due to the lack of chemical and physical stability of the plexaglass. The drums are to be replaced with glass drums, which it is believed will be completely satisfactory.

(2) Preliminary tests viewing film on the drums indicates that the field flattener does a satisfactory job of correcting for the curved viewing surface. Also the optical system is satisfactory as compared with the 5" zoom stereo viewing system.

(3) The X and Y manual drives were too slow and the frictional drag was too great. Manual drive take-offs and gear ratios are now being changed, and manual control knobs are being replaced with hand wheels to improve the manual drive. In the modified drive one rotation of the Y hand wheel will displace the film 0.125 inches and one rotation of the X hand wheel will displace the film 0.150".

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(4) Lamp cooling appears to be adequate; however exhaust ducting is to be modified to avoid mechanical interference with the counter drives. The exhaust ports which are now in the top panel will be moved to the rear panel.

(5) Test of motors for driving the film in X and tensioning the film on the drums were found to be inadequate. The horsepower was not sufficient and the type of motor did not lend itself to the sensitive speed and torque control required. A new motor and control system is in the final stage of development. A bread board of the drive system is now being tested with favorable results to date. The design objective of th s control is to provide a variable speed of 0.5 to 5 inches per second with single fast slew speed of 200 feet per minute.

(6) The X and Y counters and counter drives have been assembled. A preliminary check indicates that they will be satisfactory. However, the assembled counters have not been mounted on the instrument. Therefore, the system has not been checked as a unit. They are scheduled to be installed by July 15, 1963.

(7) The illumination and optical condensing system has been checked. It appears to be completely adequate except at the lowest power (largest field of view). A bright band appears across the center half of the field at the lowest power due to refractive affect of the field flattener. This problem is not considered serious. Two solutions are now being investigated to correct.

At present we are working on or completing the fabrication of the following:

(1) The film drive and tensioning control is approximately 80% designed with a bread board being built concurrently with it. The design is scheduled for completion July 15, 1963 and fabrication and assembly completion is scheduled for the second week of August.

(2) The sheet metal housing is being modified to provide two 18" x 18" x 5½" deep compartments with doors at the front of the instrument to house the electronic components and power supplies.

(3) Wiring sub-assemblies are now in work.

(4) The modifications for mounting the glass drums are now being designed. The blanks for the drums have been ordered and are scheduled for delivery on July 8, 1963. The ground and polished drums are scheduled for delivery during the first week of August.

(5) Other modifications as indicated by tests are in design or in work at this time.

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